

XTAL

JULY

1947

Vol. 9 No. 7

for the

Albert E. Yates,
232 Benson Ave.,
Toronto 10, Ont.

VE3BIJ

7/47

radio amateur

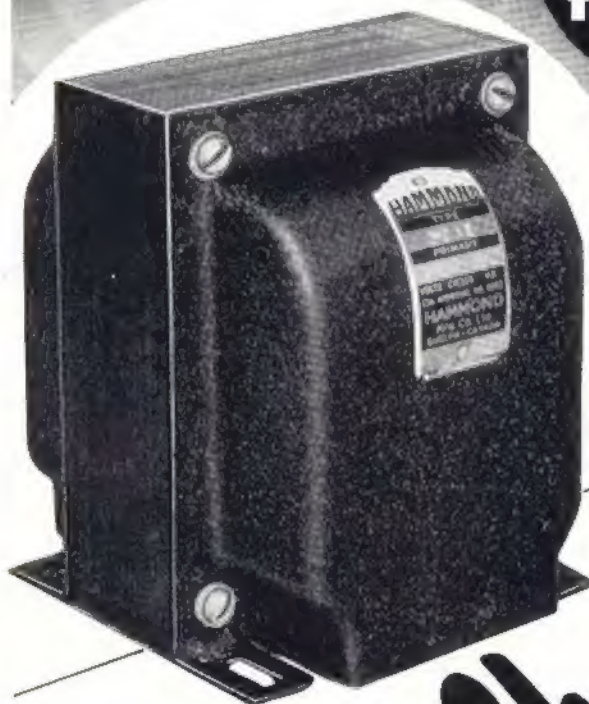


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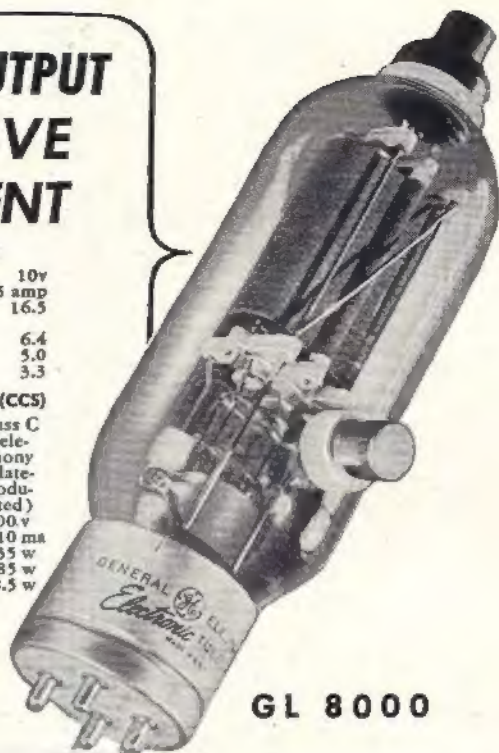
ELECTRICAL CHARACTERISTICS

Filament voltage.....	10v
Filament current.....	4.5 amp
Amplification factor.....	16.5
Capacitances:	
grid-plate.....	6.4
input.....	5.0
output.....	3.3

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Plate voltage.....	2,000 v	1,600 v
current.....	250 ma	210 ma
input.....	500 w	335 w
dissipation.....	125 w	85 w
Driving power (approx.)	8 w	8.5 w

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XTAL

[C R Y S T A L]

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HILITES

XTAL's cover this month is of VE3GT in the home-stretch of last year's FD.

On page 7 MacMurdo Silver gives us a veritable power house in miniature. A 6-band 75 watt rig from 80 right down through 6 meters.

XTAL CONTROL

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An Open Letter to Fellow Members of CAROA

HERE and there I meet members of our association who laud CAROA and XTAL, but now and again I encounter a member who has some slight form of XTAL dissatisfaction. The antithesis serves to accentuate the complex nature of the field of personal preference XTAL is endeavouring to serve.

Under normal conditions of merchandising, the astute merchant endeavours to keep his store stocked with the merchandise his customers are most likely to desire. The closer he gauges that economic factor, the greater will be his success as a shop-keeper. The best barometer he has in that phase of merchandising is the demand of the public.

The merchant who learns from public demand that product A is one of broad interest will invite the speedy termination of his business in the throes of bankruptcy if he ignores the demand and, instead, lines his shelves with product Z which has a low customer-appeal factor.

In due course, he will get down to wondering why his establishment does not enjoy more prestige as a retail outlet. If he has been a good enough merchandiser to attract people into his store, he has found the answer. Potential customers have expressed themselves when they asked for a product he was not offering.

The retailer, if he is worthy of the description, will quickly amend his buying policy. With every possible speed, merchandise Z will give way to products of type A. His shop will then begin to fulfill its primary function—giving the public that which it desires. Mutual satisfaction will be the inevitable and fortunate result—all because the customer made his wishes known.

In the field of magazine publishing, perhaps it is that the producer judges the extent to which he is meeting reader interest by studying subscription response or newsstand sales. This is merely the application of the same principle utilized by the retailer—gauging public demand. That convenient yardstick, unfortunately, is not presently available for the measurement of XTAL. If we can appraise anything from membership reaction it can only be CAROA, and in this connection we are most happy indeed to have experienced nothing but enthusiastic encouragement.

However, a standard for the evaluating of XTAL must be found. A very simple one is

conveniently at hand. It is a most obvious answer, and perhaps its obviousness demands an apology for its presentation. Paradoxically, it is the obvious things which oftentimes escape our notice. We humans seem to have a tendency to those things which require the greatest effort, overlooking a simple expedient that will produce greater results.

The method entailing the least effort can be the medium for constantly improving XTAL. Much improvement is possible—no one will gainsay that fact—and many plans are in the embryo.

Plans, however, must mature slowly, for the publishing of XTAL is not a simple routine task. This is true because amateur radio is a hobby of many phases. Five thousand amateurs fall into groups each of which finds its greatest interest in one particular phase. If XTAL is to be the interest magazine we hope to make it, its content must bear some relation to group interest intensity or participation, and that interest—very largely—can only be determined by the merchandiser's barometer of public demand.

As we read our XTAL we approve of something we have just read, or we are disappointed because of the absence of a feature or the lack of an article on some particular subject. What more effective instrument for a better XTAL can there be than a few words indicating our reactions or desires?

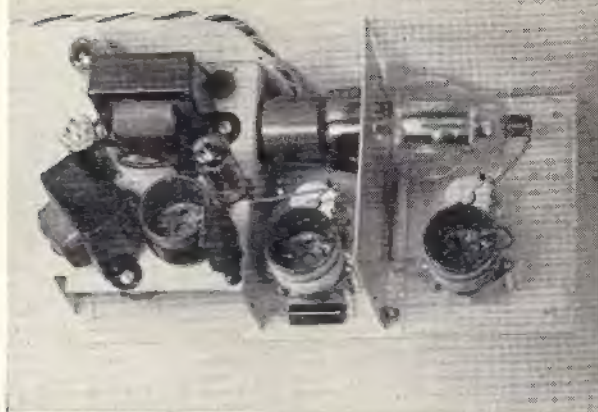
If a letter is not possible, a post-card will suffice. If we are traffic men, we shall naturally think in terms of originating a message on the subject. No matter what the medium, every time each one of us gets the flash of an idea let us send it along to CAROA. The association statistician will do the rest. Better still, let us not wait for an idea to strike us. Instead, let us occasionally send along our brief impressions of XTAL—that will surely help.

The result? CAROA will offer a XTAL which will be analogous to the merchandiser and his product A—all because of public demand.

CAROA and XTAL are not abstracts. They are not things apart from the members. CAROA is the membership and XTAL is their common property. The association and its publication belong to you, and you, and you, and me. Let us make OUR possessions the best we possibly can.

Six-Band 75 Watt Transmitter

BY McMURDO SILVER*



UNDER today's acute shortage when living space is at a premium and the xyl begrudges even one cubic foot to the indulgence of her husband's hobby, and when prices continually rising make life for the serious ham far from a bed of roses, it is believed that compact design should be welcome. If such saves space, cuts cost and increases dependability and frequency range, its worth should prove far more than monetary. If flexibility may be incorporated into a transmitter design to such a degree that the basic unit provides phone as well as CW, power sufficient to really reach out, frequency range stopping off only where "plumbing" takes over at UHF, if the basic rig be suited to efficient portable, mobile and emergency work, if it makes the logical driver for such high-power final amplifier as may be eventually added, then such a design should be welcomed by amateurs. It can be a boon for the ham desiring a rig for his car—or to take on vacation.

The desirable features outlined above are quite a bill to fill. That this new transmitter quite amply measures up to all these desirable requirements can best be left to the reader's judgment. It may be stated, however, that despite its small size this transmitter is decidedly not a toy—for no toy receives voluntary comments in QSO's about fine speech quality, clean, keying, pure xtal tone and punch—no toy reaches out 1,500 miles on 3900 Kc phone regularly.

One amazed ham, examining this little giant for the first time, at first unable to believe his eyes, exclaimed "Why—it's atomic—only more so!" Thus was born its name "ATOM-X". Since "atom" is the modern simile for extraordinary power and punch in small size, and since "X" classically stands for the unknown—in this case extra value—"ATOM-X" seems thoroughly descriptive.

The circuit diagram of Fig. 3 depicts nothing particularly startling in the way of a new circuit. It's the old, tried-and-true tritet oscil-

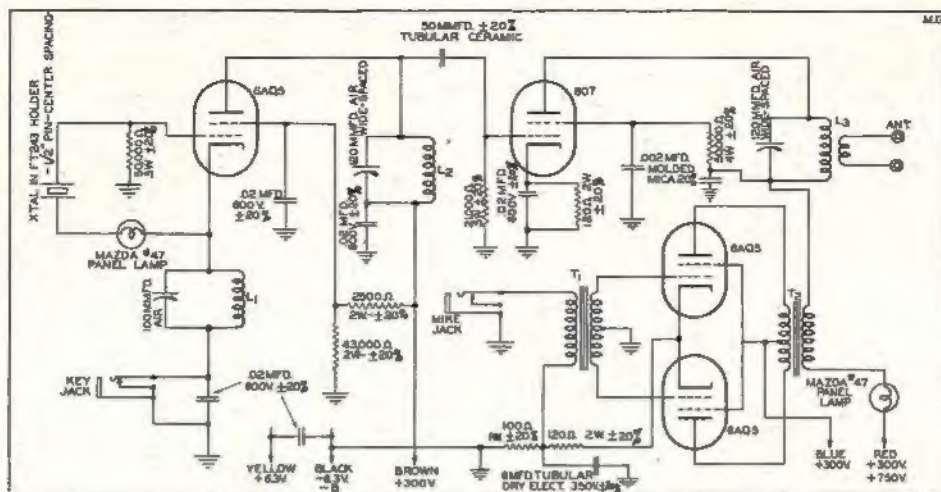
lator dressed up to improve performance by a new tube. This proven oscillator drives the 807 beam tetrode as a Class C final amplifier. A Class A push-pull beam tetrode modulator for phone operation is built in. There's nothing spectacular in such a well-known circuit. Let's see why such an old favorite should do more today than it did before the war.

The new 6AQ5 miniature tube is one reason, while the compact construction which yields extremely short inter-stage leads is in itself the explanation of the fact that operation at 6 meters is also had in a basic low-frequency transmitter. Operation at 6 meters is every bit as good as that of a transmitter specially designed for it. The 6AQ5 is, for all practical purposes, the good old 6V6GT beam tetrode modernized and reduced to miniature size. The 6AQ5 miniature button base reduces lead length, minimizes base inductance and capacity inescapable in the long-stem construction of the 6V6GT. The net result is a miniature 6V6 having grid-plate screening good enough to allow the new tube to work as a straight-through r.f. amplifier without the need of neutralization! This is a good thing to know, but of little direct value to us here, since we are using the 6AQ5 as oscillator, not as an amplifier.

As grid-plate oscillator the improvements incorporated in the 6AQ5 seem to have little special value. When used in a tritet circuit the exact opposite is the case. The low inter-electrode capacity of the 6AQ5 becomes just what is required if the tritet is to work only as a frequency multiplier but straight through on crystal frequency. This gives us our first gain—the ability to use a compact, miniature tube of low cost in place of the large RF pentode heretofore required to permit tritet operation upon fundamental, as well as upon harmonic output frequencies. Its low internal capacitance and low lead inductance give high output at 54 megacycles, as well.

Small tuning capacitors—small so that they will not progressively turn into inductances as

*1249 Main St., Hartford, Conn.



frequency is raised—hold up efficiency in oscillator plate circuit as well as in final amplifier plate tuning. Mount these capacitors close to their associated circuits, mount small inductors suitable for HF operation close to both tuning capacitors and tubes, and we find that it's no trick at all to make this basic low-frequency transmitter sit up and perk right up through 50-54 Mc.

But how do we get a modulator into an atom-size rig, too? Here again that boon to amateurs, the new 6AQ5, comes to the rescue. In intermittent speech operation, we may run a pair at 300 plate volts, get 14 watts of audio out of two such baby tubes with ease. Recognizing that we do not want "broadcast station" quality, we wisely select a carbon microphone. Its output being high, it being designed for the one thing we want—top-quality speech, not wide-range music—we find that our modulator consists of nothing more than a push-pull microphone transformer, push-pull modulation transformer, two 6AQ5's and one resistor. If we split this resistor used to provide cathode bias for our modulator tubes, and add an electrolytic condenser, we get microphone current without batteries!

Break-in operation is desirable, so oscillator keying is indicated. If we are careful we can eliminate keying chirps due to varying voltage obtained from any practical rectifier of power supply. If the final amplifier sees both cathode and excitation bias, then its plate current will rise a bit when the key is up, drop when the key is down and excitation is applied to it from the oscillator. This can be a boon in the form of quite adequate power supply voltage regulation. No harm is suffered by the 807, for the increased plate current of key-up condition is well within its capability, and its cathode resistor preserves it from damaging

overload. This nice balance providing automatic plate supply voltage regulation is not difficult to obtain. The values shown in Fig. 3 are entirely satisfactory. The pedantic amateur could, however, make R5 initially variable, so he can set the unexcited plate current of his 807 to exactly the value representing the sum of its excited plate current plus oscillator plate current.

So the circuit of Fig. 3 may seem to be nothing new at first glance. But the application of a few new and sound modifications results in marked improvement in performance and all around utility. But no matter how good the circuit, results can be no better than the quality of parts employed, nor of the construction evolved to tie it into an operating whole. Here military design experience comes in most helpfully.

A commercially-finished 5" high by 10" long panel of 1/16" half-hard aluminum is etched with all required nomenclature, finished in frosted white upon a black enamel background to produce a military-commercial final appearance. On the panel are mounted the three mmfd. tuning capacitors, C1, C2 and C3 (C2 and C3 wide-spaced), the key and mike jacks J1 and J2, the 807 inter-stage shield, the panel lamp "meters" M1 and M2, and the frosted aluminum channel carrying the oscillator and modulator as well as the 807 socket. The whole assembly fits into a cabinet only 5 1/4" deep—to give a 75-watt CW, 28-watt phone input transmitter in less than one-sixth cubic foot of space!

On the underside of the separately assembled and wired channel, the only "chassis" in the entire transmitter, the absence of successive layers of impossible-to-get-at parts is decidedly pleasing. On the rear of this channel are the two modulator tubes at lower right, with the

modulation transformer next to them. Along the top, left to right, is the plug-in crystal holder in its socket, the tritet cathode coil, 6AQ5 oscillator tube and microphone transformer.

Back in World War I several of the early Navy airplane transmitters dispensed with meters in favor of using small panel lamps as current indicators. This has always appealed to the writer, because the panel lamps serve ideally as fuses to protect circuits and tubes in the event of unintentional overload. A burned-out meter is a sorrow indeed. A burned-out panel lamp costs but ten cents—and in burning out protects any amount of expensive tubes. The argument is obvious. Proceeding along this line, the left-hand panel lamp indicates RF crystal current, gives all necessary operating indications both for tune-up and operation—and desirably fuses the crystal. The right lamp is the plate current "meter" for the 807. Tune-up and continuous monitoring of operation is nicely provided by it, as well as fusing for protection of the 807.

Coils are available, factory wound and tested for 80 through 6 meter bands. Power supply can be almost anything available. Plate voltage may range between 300 and 750 volts rated maximum for the 807. Current required will run about 200 ma. for oscillator, P.A. and modulator—about 135 ma. with modulator switched off. Any good replacement power transformer will do, in conjunction with an 83, 5U4 or 5R4GY rectifier tube, one 10-henry, 200 ma. choke, and four 8 mfd. 450 volt electrolytic condensers. Two such condensers may be used connected in series across the rectifier output, the other pair in series after the filter choke. Each condenser should be shunted with a 100,000-ohm, ½-watt resistor to insure equal voltage distribution across the series condenser pairs. Highest voltage may be had from 350-400 volt replacement power transformers by a bridge rectifier circuit, or by using them half-wave.

In this transmitter operation is had at fundamental crystal frequency, or with frequency doubling or quadrupling taking place in the tritet oscillator, or in the final amplifier. It is preferable that the 807 amplifier always work straight through. This is particularly desirable in phone operation, for modulation of a frequency multiplying stage, while quite operative, is not to be recommended. A crystal in the 80-meter band will give output on 80, 40 and 20 meters. A 40-meter crystal will give output on fundamental, second, third and fourth harmonics to cover the 7, 14, 21 and 28 megacycle bands. A 14 Mc. crystal will cover the 20-meter band on fundamental and the 10-meter band on second harmonic. Output on 50-54 Mc. requires a crystal cut to one-quarter the

output frequency, or between 12.5 and 13.5 Mc. Crystal should be in the new, small Signal Corps type FT243 holder having ½" pin centre spacing. Only fundamental crystals should be used—prewar 20 and 10 meter harmonically cut crystals are unsuitable, undesirable in any case now that fundamental cuts may be obtained right up through 14.4 Mc. at low cost.

Final amplifier efficiency averaging about 66%, and the oscillator providing ample drive on fundamental, second, third and fourth harmonics, 75 watts input on CW gives about 50 watts output on any frequency from 3.5 through 54 mcs. At 300 volts input to the final, 100 ma. plate current under load, output is about 20 watts. Such 30-watt input is modulated substantially 100% on voice. The 807 input should be held down to about 30 watts in phone operation, since this will give greatest effective communication range. An external switch may be provided to open the modulator B+ lead for CW; close it and insert a 50-watt resistor in series with the main B+ lead to the 807 to drop the 807 plate voltage and power input to 30 watts for phone—if over 300 to 350 volts is available for highest power CW operation.

A link winding is provided upon the final amplifier plate coil. This link may feed a suitable antenna directly, may feed an antenna tuner such as is described in the several radio handbooks, or it may feed a link winding coupled to the tuned grid circuit of a high-power final. If preferred, the 807 plate may be capacity-coupled to the grid of an added high-power final. For portable operation with the usually unpredictable temporary antenna, a 350 mmfd. variable condenser may be temporarily fastened to the right exterior end of the cabinet. In such case the B+ return of C4b should be connected to the stator of such condenser and its rotor grounded to the panel. Connecting the antenna to stator of the 350 mmfd. condenser through a good .002 mfd. fixed condenser, ground to chassis, gives about the simplest type of antenna coupler or impedance matching system.

In conclusion, it is hoped that it has been demonstrated that physical size alone is no measure of amateur transmitter goodness; rather the contrary, for here is a 6-band efficiently constructed transmitter of most desirable characteristics for main station transmitter or driver as well as for portable, vacation-emergency work. Through compact construction has been gained operation on the 6 meter band impossible to old-fashioned big rigs.

VHF IN CANADA

Conducted by GORDON COLEMAN, VE3JNY

IT MIGHT be of interest to those of you who read this column (and I hope more than just my Editor does, hi!) to know where the interest in VHF lies in Canada. Since there are many well-populated areas where there is no activity, it is hoped that some may be fostered, or perhaps disclosed, by such a listing. So, if there are any areas not covered, kindly let us know and we will certainly be interested.

Nova Scotia: The Halifax area is fairly well represented on six meters and two meters with about ten stations, nothing doing in Cape Breton.

New Brunswick: A small group in Lakeburn, New Brunswick.

Prince Edward Island: Nothing reported as yet.

Quebec: A very active group in and around Montreal.

Ontario: Oshawa has a good representation, with about seven stations. Toronto has about 15 six-meter and almost as many two-meter stations. Hamilton, Bartonville, Dundas districts boast ten active on six and two, with much interest in 235 and 420 mc. work. Brantford has one eager participant. Belleville, Trenton district has shown interest, as have Ottawa and Niagara Falls, but as yet no activity reported. Windsor district is inactive, and it occurs to us that, being surrounded by W2's, should be a hive of two-meter activity.

Manitoba: Very active two-meter group in Winnipeg and some good six-meter stations, about six or ten all told. Interest is also shown in 12 centimeter activity in Winnipeg.

Prairie Provinces: Just no interest, why, we can't figure out, with the WO's in Minn., N.D., S.D., etc., very active and fairly level land where 100-200 mile QSO's are the order of the day.

British Columbia: Very active, but small, group in Vancouver district, who are the leaders in Canada for dx contacts and equipment. Orchids to you Ve7's!

Yukon: And last but not least a very interested group in Whitehorse, Y.T. district, who are going to show us all up some day!

There it is gang! Not very good, is it? Where are all the hams who got a good taste of VHF during wartime radar days? Maybe they haven't yet got tired of bucking QRM on 75 meter fone, 20 fone, 40 and 80 CW. Oh well! Some day it is my earnest hope that every line-of-sight area in Canada over 50,000 population will boast at least a token representation. When that day comes, QSP's will pass

across Canada by VHF. It is almost possible, now, but some of the hops are a "leetle" long!

So much for that. Let's get down to the business of the month. Namely, six meter dx. Boy, what a field-day some of us have had. Better start at where we left off last month.

May 22, Toronto Area: 1845-2000 hours, a fair opening with hvy QSB.

May 23, Halifax Area: 1800-2300 hours, good opening W1, 2, 3, 4, 8, 9's coming through; **Toronto Area:** Midnite to 0300 hours, a very good opening with WO's predominant.

May 25, Winnipeg Area: Fair opening 1800 hours.

May 26, Toronto Area: Fair opening 2000-2100 hours with W4's predominant.

May 27, Toronto Area: Strong opening 1800-2000 hours with W4, 5, 9, O's coming through; **Winnipeg area:** Good opening, 1950-2030 hours with W4, 5, 7, 9, O coming through.

May 29, Toronto Area: Missed out on this one! **Winnipeg Area:** Weak opening 1900 hours; **Halifax Area:** Good opening 2045-2200 hours W1, 2, 3, 4, O's.

May 31, Winnipeg Area: Weak opening 2100-2300 hours; **Toronto Area:** Good opening 2300 hours to 0215 hours June 1st, WO's and W9's.

June 1: Seems to have been a red letter day all around! **Winnipeg Area:** Very good opening 2000 hours to 2330 hours. W1, 2, 3, 4, 5, 7, 8, 9, O. **Toronto Area:** Winnipeg missed the W6's but Toronto didn't! Good opening 1700 hours to 2000 hours. W6, W9, WO; **Halifax Area:** Good opening (time and districts not available).

June 2: **Toronto Area:** Weak opening 2300 hours, W4's; **Winnipeg Area:** Fair opening 1200 hours with W4's and W5's.

June 6-7-8: Very good openings Toronto area early evening 6th, late afternoon 7th and early evening and late evening 8th. W4's, W5's, WO's.

June 13: **Toronto Area:** Weak opening 2345 to 0030. W1 district for first time!

June 15, Toronto Area: Fair opening 1920 to 2130 with W4's predominant.

June 16, Toronto Area: Spotty opening, fair dx, 1700 hours. Ve- and 1900-2030 WO.

From May 25 to June 6 the 6 meter band was open regularly in Ve7 (Vancouver) area but no definite dates or times available. All W districts heard and worked in this period.

Well there it is, to the best of our knowledge. Bet the 20 meter and 10 meter boys would like to work all W districts in one month. Come on down with us fellows, plenty more room and guaranteed QSO's at a flip of the wrist. The

xy! can't tear your scribe from the old rig these days! Wonder what I'd do if the house caught fire during a dx opening? You know don't you gang, "let it burn" hi! (I didn't mean that Mrs. C.).

Portable work can get interesting too! Ve3AIB and Ve3ATB, Toronto succeeded in snagging dx contacts lately while out mobile with flea power rigs. Reports were S7 to S9 and power not over 4 watts! Ve4AP did the same last fall on 4 watts and Ve7NM has only 7 watts (fixed location) and does some fb dx-ing. Portable rigs should be xtal controlled, however, but tubes like the 6C4, 6AK6, 6AQ5, 9002, E1148 to a swell job and yet keep the size down.

If anyone knows how to track down QRN of the electric razor, sewing machine, arc welding, diathermy, variety will they please write us a nice long letter? The greatest array of grunts and howls, scratches and beeps and just plain noise have been coming from speakers in and around Lakeview lately, that reports of BVI have been hitting pretty deaf ears. (Local R.I. please don't pay any attention). Honest, though, fellows, it does get pretty annoying when some joker goes away for a week-end and leaves his electric razor on, or when electric fences stay on during the night when all good cows should be in bed anyway. I'll bet all of us could do with a good system of ferretting out noise. So what say? Anyone know of a sure-cure d.f.-radar-crystal ball outfit?

We don't claim to be any whiz at understanding E layer skip and a lot of unexplainable things have happened lately. For instance why is it we, in Toronto, hear and work WO's and at the same time WO's are also hearing and working WI's, but WI's can't hear Ve3's and vice-versa. Do I make myself clear? I don't have to draw a diagram to explain that. You've all experienced the same thing. Double hop? One direction skip? We'd like to know. Also, why is it (and it's been tried dozens of times) that, for dx stations, if horizontal polarization is used on the transmitting end, the sigs come in better on a vertical. And if vertical is used on transmitting end they come in at the receiving end better on horizontal antennae. Does the polarization take a flop-over on the way down? We don't know but it's happened plenty. We'd like to see more experiments along this line. It should prove something or other to someone's satisfaction.

DX record after dx has been broken this month but the present holder is Ve3AZV. Ed is 3 miles east of Oshawa, Ontario, so he beat out 3A2T in Oshawa by 3 miles when they both worked W6's. This QSO scales just over 2250 miles on our map, and compares very favorably with the W6NAW-W8CIR/1 QSO of last January. We're getting there fellows. Ve7-VK next? or Ve1-PAO? Could be! July 3 should be the best day of the year. Wonder

what we will have to report next month? This brings us up to another important topic. We try our best, weeding through letters, hearing QSO's over the air, and being told of Canadian dx by our W friends, but of necessity the "dx Derby column" is not quite as accurate as we would like. It is quite an honour to be at the top of the list. It shows excellence in several items. Good operating, good equipment, faithful monitoring of the band and perseverance, plus a taste of good location, all combine to pile up an enviable record. However, it is up to you to claim your position at the top of the ladder. If your dx record is not as high as it should be, it is not entirely our fault. Claim your dx! And remember, a station, once worked, can not count again no matter how many QSO's you have with him. It is not our intention to debunk friendly rag-chews with dx; far from it! It's good to get together with our U.S. friends and fellow VHF'ers, but what we mean is, a station once worked should not be counted again as a new contact if worked again. So, here's the score to date:

Canadian dx Records

- 50- 54 Mcs—Ve3AZV (Oshawa)—W6UXM.
June 1, 1947—2250 miles.
235-240 Mcs—Ve3BNG (Waterdown)—
(Hamilton).
May 18, 1947—15 miles.
420-430 Mcs—Ve3BFF (Hamilton)—Ve3AND
(Hamilton).
Mar. 15, 1947—1 4/5 miles.

6 Meter dx Derby

Call	No. dx Stations
Ve7AEZ	70
Ve7VY	52
Ve1QZ	34
Ve3ANY	32
Ve3AIB	17
Ve3BFF	17
Ve3KM	16
Ve3AXT	10
Ve4GQ	10
Ve7NM	9
Ve3AVW	8
Ve3NH	7
Ve3AND	6
Ve3AZV	6
Ve3AEU	5
VE3ATB	5
Ve1TR	5

QVE ROTARY CLUBBERS

All hams who are Rotary Club members are asked to contact Ve3SZ, Bowmanville, Ontario, to try and form a Rotary Net. Ve3SZ has been asked to do this by Rotary members in Pittsburg, Pa.

C A R O A NATIONAL REPORT

Ve1

New Calls

Ve1FV Doug Burrill, 82 Pitt St., City; Ve1HQ Ken Cox, 7 Prince William St.; Ve1JL Jack Holman, 262 St. James St.; Ve1IW Pat Staples, 109 Broad St.; Ve1DL John Lezney, 302 City Line W.; Ve1IF G. P. Deacon, 87 Water St.; Ve1GE Rex. Nichols, 88 Newman St. Licensed Amateur Saint John and vicinity supplement to last issue—Ve1AO John White, Duke St. W.

Tip On dx

Ve1FV has a friend here from South America who is returning there soon and who is anxious to find radio hams willing to try skeds with a Venezuelan Ham friend interested? Send 1FV a note or call him 3-9158.

R.I. Dept.

All club members join us in extending a hearty welcome to Mr. E. Ginn. Among Mr. Ginn's other duties will be the one of paying your shack a visit. So we ask you to make your shack ship-shape, thereby facilitating the inspection.

This and That

1EE now getting a 50 MC rig ready. What about the big rig for the other bands, Murray. 1HQ, Ken's rig is really something, he spent two years on and off building it, and we heard that when he throws the switch it sounds like a whole orchestra of castanets, he has so many relays on it, hi! 1FL as 1AYL, doing a good job with 15 watts on 20 mtrs. fone. Nice sig. Fred and by the way who's leading in contacts now. Hi! 1IE, now using 25 watts (75 mtrs. fone) and getting bang-up reports. We heard that the other 475 watts are just standing by. Hi! 1IZ, now going around with that certain far away look it can only mean one thing—he'll be on soon. 1FV, Doug's doing O.K. as punching a hole in the QRM working Ve1's as well down the "W" districts. PB. Must have some output because every time he processes the key his porch light goes on. Hi! Hi! (80 mtr. about 20 watts). 1IW, snugged a bit of dx on 40. Worked HRIAT (Honduras) also a lot of Ve's and W's. When working the G18, and NY4 (Cuba). Also worked all W districts (40 rig from Ve1MM's shack he hooked up with a G2, G3, mtrs. about 40 watts). 1RQ, sure putting out a wallop of a sig. on 40 mtrs. Wow, look out there Malcolm or some of us will be sporting R.F. burnt ears. Hi! Hi!

Field Day

Don't forget June 29 at Victoria Wharf, keep that date open. Bring lunch, xyl or y1, portable radio gear and transportation if possible. Meeting time to be decided at Tuesday's meeting.

Rag Chews

Our last rag chew was enjoyed by some twenty members. Thanks to Harley, Ve1E for a very informative talk on antennas. For our future Rag Chews we are looking forward to some pictures (movies) and a recorded talk of interest to all Hams. We believe the movies are of 1FL's own making as the recorded talk on "Broadcast Interference" is by Ve2BE, Alex. Reid.

Switch To Safety

Low power when given a chance can cook a Ham—Look out there, don't touch that! Pfft, Pfft, whoops, too late! Call the morgue! QRT es R.I.P.

Hams' IQ

Did you ever try to copy a sig. when someone is key clicking or spluttering all over the band. The answer to that one is, "Censored"!

Dues

Have you looked at your membership card lately?

Local QSO's

We wonder if any hams take a twist at the dial at noons? Most of us have a few minutes at noon which could be used for local chts. Ve1FV your Co-editor usually takes a shot at noons about 12:30 or later on 80 mtr. (CW)

Ve5

Bill Gordon, Ve5MW, Oxbow, Sask. 5IC has done it again. We're all going to chip in and buy Irv a pair of size 14 shoes so he can attend the hamfests. 7MW is on 20 and 75 fone. 5MS is on 80 CW along with 5IL. 5IL is running three watts to a single 30 which caps 5RB's high power of eight watts. 5SD is going on 75 fone soon. 5FA blew out his modulation transformer, (poor fella). A pint-sized hamfest was held at Watrous on the way home from the Saskatoon hamfest when 5AT, 5FA, 5GA, 5IL, 5MP, 5QL, 5HH and 5AG put in an appearance and gave the Watrous gang a going over. 5HH had a suspicion what was going to happen and put burglar alarms on everything that wasn't nailed down. 104 attended the Saskatoon hamfest. 6PP from Lac La Biche journeyed the farthest to attend it. Contests, Hars contest, etc., were held with the following taking home the prizes: 5GA won a crystal, 5FA, a power transformer. 5RV got the fabulous fur-lined button holes for the Hars' contest and 5PA won the quiz contest (smart feller!). Among those who attended the hamfest were 5MP, 5HH, 5FY, 5CO, 5LY, 5OP, 5CW, 5GA, 5FA, 5RV and 5PA. Tfc: 5MW-2. 73 Bill, Ve5MW.

Ve6

Bill Savage, Ve6EO, Lethbridge.

6SW went East on a business trip. 6OT has a fine 75 mtr. fone sig. on the air. 6WZ says he is no fisherman but he has a good line (on the air). 6MP is very busy on 20 mtr. fone. 6DR is back home now from his trip East and is on the air. 6ID had better get his rugs beaten before the xyl beats him. 6FO is a new call for Lethbridge but an old ham. Lots of luck Bill with your new call, and may the dx come fast and thick. 6FS, Walter Jordan, is another new call here and is working on 60 CW and getting out FB. 6J1, Bunnard Payne and 6JX Frank Wright are two new Calgary calls. Welcome to the ham ranks fellows. 6BC does have a few spare moments to work ham radio (the Blonde Chaster hi). Well, it seems that 6GD, 6TH, 6AY, 6FK and xyla, those that have xyla, paid a visit to 6TA and 6KU at Hussar where they were treated royal. They had a 24-pound turkey and they killed the fatted calf, hi. Unfortunately 6AO, 6HZ, 6MP could not make it on account of illness. Also 6JB could not make it, no transportation. 6NF, 6AY, 6TK are doing big things with H.F. equipment. The boys in the south hope to hear them this summer when they put on their H.F. tests. It is hoped that 6NQ shows up for the field day tests over the week-end. 6AO was top man in Canada for the VK-dx contest as reported by WIA. Then George calls 6GD a stinker because he runs 99,999 watts so he can use the low power multiplier in the ss contest. 6FK has gone class B with TZ-40's and is chasing hams out of his audio system. 6TM has an AT3 in the basement, must just be for show because Martin only works local. 6BU has a new 304TL and is threatening to show up the dx boys. That's easy Lorne, hi. 6SR has just come back from a postmasters' convention. 6LA is still putting out a nice signal with his pr. of 812's. 6KZ is on 75 fone with a pr. of 807 in the final and running 100 watts. 6AO is now a member of CAROA and claims he is qualified to beef at the organization. Tax vy for all the info, this month. Keep up the good work. 6MN gets another 813 for his rig. 6HR it is rumored is going to Toronto. 6EV has moved his gyp joint in the basement of the store. 6OG being President of the Legion, is very busy and don't get on the air very much now. 6HW has now acquired an 810 which I think he is going to use for an audio output on his sky buddy. 6AX is heard on 75 now and again. 6IC is very busy with S.A.A.R.C. activities but usually finds enough time to ask his brother 7ND. 6MH says he is getting enough moisture and should have a good crop this year. 6KO is busy building up a 10 mtr. beam. 6IP is still busy farming; wonder if he is going to put a mobile rig on the tractor. 6AI pays a visit to Lethbridge, sure nice to see you again Spence. 6VN is still busy pounding nails in his new house and is not on the air much. 6AA



DX'ers of THE MONTH

VE3QD
72
COUNTRIES

Call	June	PW Total
Ve3QD	72	—
Ve1EP	63	—
Ve1EW	57	—
Ve3ACL	37	50
Ve1FB	32	—
Ve7EH	26	51
Ve3ARS	26	69
Ve1EA	23	89
Ve7CS	18	28
Ve7HC	16	34
Ve3AKY	16	17
Ve3TB	16	—
Ve3AGC	13	64
Ve2FG	12	26
Ve8AS	11	45
Ve1AQ	9	50

Change in Rules!

Beginning with September XTAL (August reports) dxers must work 15 countries to qualify for listing. A list of prefixes must accompany each report, and post-war totals must be stated. Failure to observe these revisions will disqualify. We again remind you to submit reports in the following order:

1. Your Call.
2. Number of Countries worked for the month.
3. Number of Countries worked post-war.
4. Your Name and QTH.
5. List different prefixes worked in month.

rebuilds his modulator unit. 6JJ makes a trip to Winnipeg. 6JF is working in the high end of the 75 mtr. fone band so he can work some W7's. 6OF is the new reporter for the local RF magazine. 6EL needs to QSO with caution because every time he coughs he blows a fuse on the primary line. 6GI should forward an envelope for his QSL cards. 6ND should have a rig going one of these days. 8SJ is getting his farm wired up for some real A.C. power, no more vibro-packs or genemotor sets, says Pete. 6EO is still looking forward to a QSO with his old pal ZS1M; the other boys seems to be working him, but not Bill, hi. Well tax to the fellows who sent in reports this month and to those who did not send any this month how about a little news for the next month.

73 CUL.

Ve7

Ernie Savage, Ve7FB, Vancouver, B.C.—Your old DCM "Eldon" McLennan, Ve7JY, Vancouver, is heading for KW land for two weeks from there to the Ve3 land. So it's a pleasure for me to carry on. 7DY Mighty Mouse did Vancouver to Prince George, 400 miles CW 225 volts. 7HP in 21 days on 20 meters, 18 countries, seven provinces, 41 states (H.P. Hep?) Vancouver Amateur Radio Club's dance was a whole of a success. 7ADF M.C. 7MQ magic? 7FB Bar. 7EV, 7ET, 7AL, 7AKF, 7ALQ, Don, Dave and others mass produced sandwiches, sold tickets for soft or hard and many other chores. A mercury P.A. was used with great gusto for dancing but three cowboys sure made music and R.S.T. 599 and signal prizes and a crock of "Kennedy Co." was auctioned. 7VQ Port Alice nice 75 fone signal. 7WP has tamed his 654 trans. and dx. 7ACW B.C. Bobby voice of Port farm. 7TQ, what's the news from 12 and Cambie Ron? Albernie. 7MX from Prairies now hamming on turkey 7US, QSY to Vancouver. V.A.R.C. transmitter hunt inquire and see what is up on finding it. Frequency 3850 kc. Send your dope to this dope as we need your dope for this dope and I do mean dope. 73 Gang.

7AEV, operator for the B.C. Police in Prince George, states that he is getting ready to operate with some new equipment being installed this month. 7LI is back on the air after quite a lapse of time, and is heard working

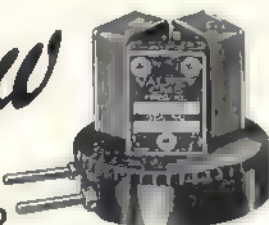
the odd station on 75 and 20 meter fone. "Doc" reports that his best dx is Anchorage and Toronto. Wants to get rid of some extra R.F. on ten meters. 7FG reports some activity between extracting molars. Has just purchased a war assets receiver which seems to be doing a nice job. 7ADL also has a war assets receiver and is going in for a little more power. 7ADH just got back from a trip to "W7 land" and the coastal regions of B.C. Bought himself a new Miller Exciter. The Cariboo Amateur Radio Club has its call—Ve7ALY, and if plans materialize a rig will be on the air by June 22. 7DV is rebuilding for more power and is just about ready to go with 200 watts, with a B.C. transmitter and juke boxes to keep going DV has little time for ham radio. Six meters seems to be good in this part of the country. Ex-5CP bought himself a 10-6 and 2½ meter converter and dx was pouring in about three weeks ago. Mostly W6 and W7. Have not heard any Ve's on 6 as yet. Several of the boys in this vicinity are interested in high frequency experiments, but seem to lack the ambition hi. Several club members hope to have rigs on 6 and 2½ before long. During a "hot" night on 6 dx records could have been equalled if not broken if we had been able to get a rig on six. When you consider W6's in Santa Barbara and San Diego from this QTH. Its quite a few miles! We are 700 miles north of Vancouver, so figure it out. Haven't heard from the other boys, but will try to get some information in soon on dx and other activities.

Even with nice weather, activity among club members is at a high level. Biggest beef comes from OJ about new bus service on Fraser St. Gord is looking over noise suppression circuits and working ZL's. Copped NY4 through bus QRM with about 40 watts input. ABP, Jim Summerby, on CW broke through on 7097 Kc. to KL7 land. LF, Cliff Steel, is off to the Cariboo to become a dude ranch cowhand, xmtr going along as well, probably be run by horsepower (hi). MH busy handling QSP from VQ2AL on 20 CW. Kept sked for two weeks. Is working usual Europeans. Gordie went home with a fist full of Sweden cards from QSL manager last meeting. (It was Russians the time before.) AZ, Jack Swenson, sports new close-spaced three-element beam (muscle work done by UU and DH). UU overheard honey dripping off the elements while Jack was working XE1JE (a y). XT, Geo. Scroton, sadly watches 20 meter beam sagging and wonders if starch would help? UU, Alf, Joliffe, busy revamping shack and building a console layout. Says

IT'S

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Ruggedly constructed of glossy molded Bakelite, it is the handiest little gadget that you can have in your shack. Designed to hold Valpey type CM5 crystals having $\frac{1}{2}$ " spacing and .094 diameter pins.

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Write for prices on spot frequency "nets."

Specific frequency prices on request.

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CRYSTALS**

modulation indicator using 1N21B and O-1 ma. works fb for field strength meter, also terrific absorption from guy wires, wire fence, etc., from 10 meter beam has him contemplating doing away with all metal around the place (like telephone wires and plumbing). KK on 40 and 20 CW soon with 75 watts, pair of T20's, and S40 for ears. W6YAZ, ex-Ve5HU, of Haney and N.W., is looking for Ve7 contacts. QTH now L.A., Calif. He was employed by C.P.A. during the war doing radio repairs. Answers to Ted Sharpe. AJR, Spud (Cupid) Clark, on 10 with more power now (using 8 1/2 watts until recently), is collecting more ZL cards. AKK has rack and panel, now running 100 watts input on 40 CW. Geo. Nuhn, new member, is looking forward to ham ticket. Listen for Ve7DJ on 80 CW for a good ragchew.

Ve7DJ is now on the air with a number of contacts on 80 CW. Will be heard on unrestricted phone soon with the OK of the R.I. A2 is busy on the freq. meter for club xmitter and finds time for the odd QSO on 10 as 20 fone. XT, Geo. Saxton, working out on 20 CW with a beam antenna. KK is operating with a nice note on 40 as 80 CW. UU, Alf, Jolliffe, has rig in console now (every ham should have one). It sure makes the ham gear look fb. Almost professional hl. ADY, Jim Williamson, was out with mobile rig last week-end running 15 watts on 10 fone, calling CQ like mad but, no contacts. Although reports have been coming in from various West Coast Hams saying they heard him. The last we heard he was mumbling about a 10 meter beam on the roof of the Willys. HL, OJ, Gord Clarke, not very happy yet. He is in new QTH now on 49th Ave. East, but the B.C. Electric haven't put in pole tranny yet, and so with the help of a.c. via extension from next door he is running VFO about five watts and working W6's on 40 CW. VE7, Doug Gordon, very busy doing trouble shooting on club xmitter and keeping the larder filled for the hungry fellas on club nite. Del Foster is sporting another auto now ('89 Buick). Hopes for a mobile rig in the near future. DJ will have a new 40 meter antenna soon as BE AHL Olson can talk his neighbour into using his garage as the base of the second antenna pole. AJR, Spud Clark, is very busy doing something? Maybe building K.W. rig? We had a letter from LF Cliff Steele deep in the heart of the Cariboo. He says he finally found a QRM free spot. Is on 40 CW with low power. He has miles of room for antennas up there. MH, Gord, Armstrong, club secretary, still working dx on 20 CW.

Ve8

J. Spall, Ve8AS, Box 265, Whitehorse, Y.T.—From 8NM at Ft. Smith, N.W.T., comes dope on 8NO who has been working dx on 20 CW and 8NZ who worked Russia and OK first day on 20 CW. 8NM blew mod. unit of C3 (AT3) which cut down his fone work on 20 but sent in list of dx including F, PA, EL, and TG. Bob Reid, 8NT has not as yet been able to find time to ham. Ex 7PQ of Vancouver, B.C., is awaiting his Ve8 call which gives Ft. Smith five hams. The gang at Aklayik, N.W.T., 8MZ, 8NR, 8NG, 8NN send in long list of dx. 8NG is awaiting arrival of his WAC certificate. The boys also operate the farthest north B.C. station in Canada CHAK. What, no BCLII or do they shut it off when they go on the air hll The YARC are planning a portable rig for the F.D. on June 15, rig used will be a Collins 30K, ARS8 receiver, and a 1KW gas driven MG. They will be signing Ve8AG. 8AL of Teslin is back after a month's holiday during which time his wife presented him with a baby boy. Congrats, Fred. 8BM we understand has finally made the grade and is now on 20 CW. Grming 8AI the dx hound of Teslin. 8AD of Lac Lebarge is heard frequently on 20 fone and is now using a three elm beam. From WOXX comes word via 20 fone that 8BC is very active from Bear Creek, Y.T. 8AM of Mayo is thinking of getting his own power plant as local power is only for two hours a day during summer. The Whitehorse gang added another new call 8BV who is heard on 75 fone. 8AJ returned from holiday visit to Calgary. SAK seems to be getting interested in the YL's. Better be careful Bob. 8AY has two elm rotary. 8AW built himself a new VFO and is awaiting arrival of pair of VT 127's for new final. 8BJ has his 810's going to add to local grm on 20 CW. 8BB still makes excuses about not being on the air with his 813. 8AS and 8AY received their W.A.C. certificates. 8AS has now made a R559 20 fone W.A.C. TFC, NN5, NG3, NR2.

WITH THE MAGAZINES

OUR first copy of Amateur Radio (April, 1947) was received the third week of May, and proved very interesting. There were 23,222 QSL cards received at the VK QSL bureau for distribution to the VK amateurs in 1946. Low drift 3.5 and 7 Mc crystals, mounted, sell for £2/10s (quite a difference in the price from our XTAL kits with three for \$1.50). VK5 and VK7 and possibly the other districts, are taking up collections to forward food parcels to the R.S.G.B. Let Canada follow; the G's would certainly appreciate it.

May, 1947, Short Wave Magazine (England) —Complaints, as usual, re VFO's calling the station on his own frequency. The short wave magazine always has a list of dx QTH's, and anyone desiring a QTH, if you send us a self-addressed envelope we will be pleased to forward it to you, if at all possible.

It has come to our notice here in the Ve3 QSL bureau that there must be a large amount of bootlegging and call-swiping going on. Just recently we discovered that several of the amateur calls of the officials of the radio division are being used, and the owners are not at all pleased, even though some real good dx is being worked. Some of this no doubt is bootleg, and some of the cards are no doubt misread calls, and here is a tip for you fellows. If you definitely know that a station has misread your call, drop a note to the other station, giving him the information that the card is for you. Be sure to state band, day, and time of the QSO. If the Ve station is not listed in the call book, send the note via the QSL bureau.

W. B. KNOWLES, Ve3QB.

KINK

Probably many or most of the hams have an Ohmite Ohm's Law Calculator.

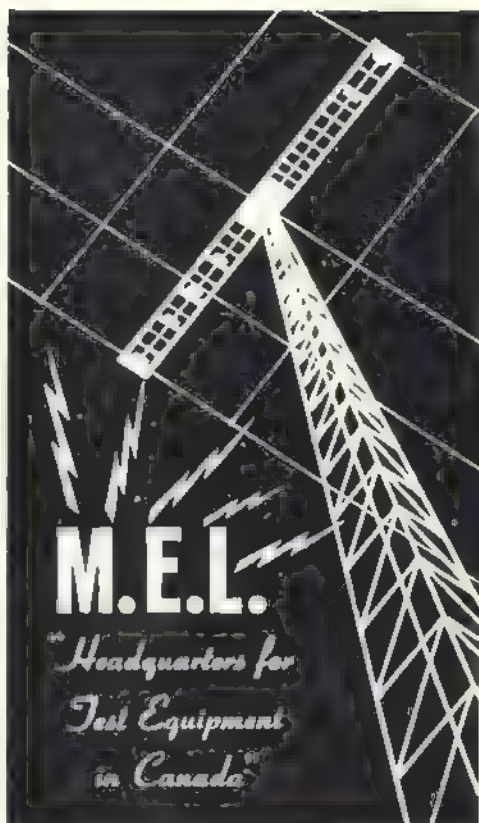
This is a very handy, simple slide rule which saves a lot of figuring when setting up a voltage divider for the power supply or when substituting 1.4 volt tubes for 2-volt tubes that are unobtainable.

The E/F volt/amps scale will also solve miles per watt input in dx calculations. Write miles distant at the other end of (E) volts scale. Watts input under that at the same end of the (F) amps scale and the (G) or Ohms scale will give the miles per watt over the arrow point.

To multiply, $G \times F = E$.

Set ohms arrow point for one number and the answer is above the other.

$70 \times 5 = 350$ above the 5.—VE5KJ.



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Small crystal oscillator using miniature tube and precision 100 Kc. crystal for mounting inside any communication receiver to derive its power from same supply. Requires only 6.3 volts at 175 ma. and 150 volts at 2 ma. Complete with crystal only. \$16.00

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Combines: 1. Field strength meter; 2. Absorption type frequency meter; 3. Modulation meter; 4. Phone Monitor; 5. Carrier Shift Indicator. Complete with coils covering 80-40-20-15-10 meter bands. \$27.50

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Antenna Matching Pre-amplifier. Usable on 20-10-6-2 meter bands. Provides accurate matching between antenna and receiver and can improve efficiency from 80 to 90 db. Supplied with one set of coils for any band at \$27.50. Coils for 20-10-6-2 meters. Set. 4.50

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Measures power output to antenna at any frequency to 30 Mcs. and any power from 20 watts to 1 Kw. Indicates standing wave ratio . . . correct antenna tuning . . . and correct match between buffer and final when link coupled. Use it in any line having impedance between 70 and 300 ohms. Complete with instruction book. \$27.50

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Type 3 and Type 4. Manufactured in U.K.

Type 3 is 12 volts D.C.

Type 4 is 24 volts D.C.

This equipment was used for switching off radios in aircraft and could be used for the same purpose on standard radios providing they operated on 12 or 24 volts.

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A large quantity of new transmitting condensers of various capacities and voltages. Selling at fraction of cost.

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New Standard Kits, Part "G" for Canadian Transmitter No. 43, MK 11 and several 1/5 sets of bulk maintenance spares. These sets contain a long list of spares and tools.

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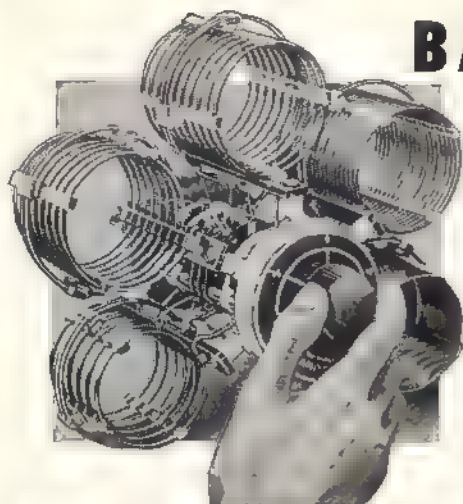
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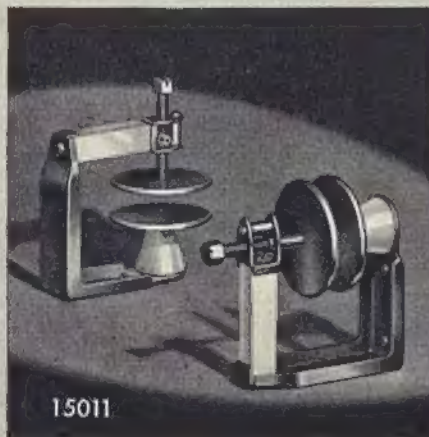
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SELL—Best offer my QTH National FBX-A rcvr with crystal filter, complete with power supply and 10-20-40-80 bandspread coils—Ve3AGC, Burrows, 170 Park Avenue West, Chatham, Ont.

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URGENTLY REQUIRED—BC 160 or equivalent by English Amateur just arrived in Canada—Will pay cash—G3NQ, Wally Barker, 71 Benson Ave., Toronto.

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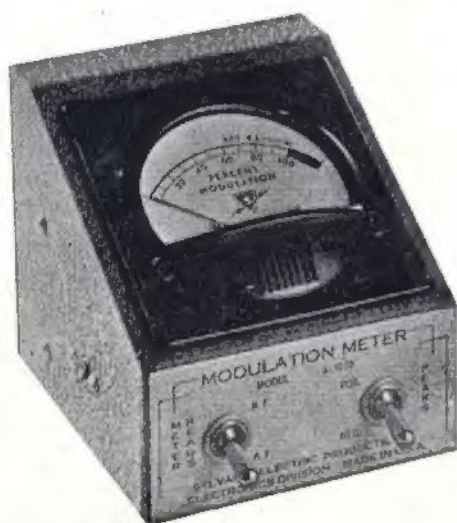
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The Sylvania X-7018 Modulation Meter provides a convenient method of monitoring the % modulation of an A.M. transmitter. It is a safeguard against inefficient transmission caused by UNDERmodulation, as well as the distortion and excessive frequency spread (pro-



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Besides being able to read directly the % modulation of a voice carrier, it will also measure sine-wave-modulated carriers; carrier shift, audible distortion, and may be used as a neutralizing indicator for tuning up.

The X-7018, employing the 1N34 Sylvania Crystal Diode, requires no tubes, batteries or external power supply. Because of its compact design (approximately 5 square inches) it will fit easily on the most cramped operating table.



To fulfill its function adequately, any type of modulation indicator must compare the voltage of the average R.F. carrier to the voltage deviations from the average, caused either by positive or negative audio modulation. This involves a comparison of two voltage measurements.

The X-7018 consists of two linear a-c voltmeters, the first responding to the average R.F. carrier, and the second measuring its A.F. component. One 1N34 acts as a shunt diode detector, serving as an R.F. voltmeter. The other rectifies the A.F. component and appears as current through the meter, giving a qualitative picture of difference between positive and negative audio peaks.

This little gadget is not only designed to permit you to comply with regulations, but to get the best out of your transmitter. In these QRM days, a properly adjusted rig sometimes means the difference or not between a QSO with some elusive DX.

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